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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 09/253,048 | 02/19/1999 | YASUHITO INAGAKI | 9792909-4094 | 5170 |
| 26263 | 7590 | 08/18/2009 | EXAMINER | |
| SONNIENSCHEIN NATH & ROSENTHAL LLP | | | MARKOFF, ALEXANDER | |
| P.O. BOX 061080 | | | ART UNIT | PAPER NUMBER |
| WACKER DRIVE STATION, WILLIS TOWER | | | | |
| CHICAGO, IL 60606-1080 | | | 1792 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|--------------------------------------|---------------------------------------|
| Office Action Summary | Application No. 09/253,048 | Applicant(s) INAGAKI ET AL. |
| | Examiner Alexander Markoff | Art Unit 1792 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

Status

- 1) Responsive to communication(s) filed on 02 June 2009.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 42-48, 50, 51, 55 and 57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 42-48, 50, 51, 55 and 57 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date ____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date ____
- 5) Notice of Informal Patent Application
 6) Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 42-48, 50, 51, 55 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The applicants amended the claims to recite that "-CH₂PO(OH)₂" and "-NO₂" groups are introduced by acid and or alkali.

It is not clear what is meant. It is not clear how can the referenced groups be introduced into the polymer by an alkali. What alkali is referenced?

It is also not clear how can "-CH₂PO(OH)₂" group be introduced into the polymer by an acid. What acid is referenced?

Further, claim 51 requires the acid be sulfuric acid.

It is absolutely not clear how can sulfuric acid introduce the referenced groups into the polymer.

The indicated deficiency raises a question whether or not the claimed invention is enabled by the disclosure.

Claim Rejections - 35 USC § 102/103

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 42, 44, 48, 50, 51, 55 and 57 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horwitz et al (US Patent No 5,281,631).

Horwitz et al teach a method as claimed. The method comprises providing an agent, which comprises a polymer having the claimed components in the claimed proportions. The polymer comprises the claimed groups. The polymer is further treated with the claimed agents (acids and/or alkali, including the claimed sulfuric acid) to obtain the treatment agent (an ion exchange resin). The method further comprises contacting the agent with waste waters to remove the claimed contaminants. See entire document, especially columns 1-3, column 4, line 20 – column 7, line 65, Examples 1, 4, 5.

As to the requirement to the polymer processed to introduce the specific groups:

First, it is not clear what is claimed.

Second, Horwitz et al the same polymer as claimed is processed with the same acid as claimed. Thereby the resulting product is the same as claimed or the invention is not disclosed and claimed in the correspondence with the requirements of 35 USC 112(1).

Third, Horwitz et al teach introduction of vinyl phosphonic acid into the polymer (at least example 4). It would have been obvious to an ordinary artisan at the time the invention was made that such would provide at least some of “-CH₂PO(OH)₂” groups into the polymer.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horwitz et al in view of Grant et al (US Patent NO 5,242,503).

Horwitz et al teach the claimed method except for application of the cleaning agent to a solid soil material.

However, Grant et al teach removal contamination as claimed from the solid soil with ion exchange resins.

It would have been obvious to an ordinary artisan at the time the invention was made to use the ion exchange resin of the Horwitz et al in the method of Grant et al with reasonable expectation of adequate results because the resin of Horwitz et al is disclosed for removal the same contaminants as recited by Grant et al.

9. Claims 43 and 57 rejected under 35 U.S.C. 103(a) as being unpatentable over Horwitz et al in view of Rodman (US Patent No 3,375,933).

Horwitz et al teach the claimed method except for specific recitation of the use of a column to facilitate the contact of the agent with the waste water and for the specific recitation of molding of the exchange resin with a plastic.

Rodman teaches that it was known in the art to mold the exchange resins with plastic to improve efficiency of the resins.

Rodman also shows a column as a conventional way to contact the water to be cleaned with a cleansing agent.

See entire document, especially columns 1 and 2, column 3, lines 15-31, column 4, line 73 – column 5, line 15, Table 1, Figure 3 and the related description.

It would have been obvious to an ordinary artisan at the time the invention was made to employ the conventional means disclosed by Rodman in the method of

Horwitz et al for their primary purpose to contact the water to be cleaned with the cleansing agent with reasonable expectation of success.

It would have also been obvious to an ordinary artisan at the time the invention was made to mold the exchange resin with a plastic as suggested by Rodman in the method of Horwitz et al because Rodman teaches that such would increase the efficiency of the cleaning.

Response to Arguments

10. Applicant's arguments filed 6/2/09 have been fully considered but they are not persuasive.

The applicants amended the claims to recite that the polymer is processed with an acid and/or alkali and to remove recitation of most of the previously claimed groups.

The applicants allege that Horwitz et al do not teach the claimed groups.

The applicants' arguments are not persuasive:

First, it is not clear what is claimed. See the rejection made under 35 USC 112(2) above.

Second, Horwitz et al teach introduction of vinyl phosphonic acid into the polymer as claimed. Thereby the resulting product is the same as claimed or the invention is not disclosed and claimed in the correspondence with the requirements of 35 USC 112(1).

Third, Horwitz et al teach introduction of vinyl phosphonic acid into the polymer (at least example 4). It would have been obvious to an ordinary artisan at the time the

invention was made that such would provide at least some of "-CH₂PO(OH)₂" groups into the polymer.

It is noted that the applicants again argue that "-PO(OH)₂" groups are introduced by copolymerization, not as required by Claim 1.

The examiner disagrees:

First, the claims require providing a cleansing agent, which is recited using a product by process limitations. Such does not require a step of processing or introduction by any specific way. If the prior art teaches providing of the same product (even it is obtained by a different way) the prior art meets the claimed limitation.

Second, Horwitz et al teach introduction of vinyl phosphonic acid into the polymer (at least example 4). It would have been obvious to an ordinary artisan at the time the invention was made that such would provide at least some of "-CH₂PO(OH)₂" groups into the polymer.

Third, it is again noted that Horwitz et al the same polymer as claimed is processed with the same acid as claimed. Thereby the resulting product is the same as claimed or the invention is not disclosed and claimed in the correspondence with the requirements of 35 USC 112(1).

It is noted that the applicants argue that Horwitz et al do not teach introducing the ionic groups into a polymer having no ionic groups.

This is not persuasive because the claims are not limited to such.

The applicants argue that Horwitz et al do not teach or suggest using universal plastic. The applicants further allege that because of the use of universal plastic the claimed ion exchange resin inherently does not include a cross-linking agent, which enables optimum introduction rate and optimum molar weight.

This is not persuasive:

First, mixing a polymer into plastic, does not exclude the use of a cross-linking agent in the polymer or in the plastic.

Second, the applicants disclose the use of polymers from electric appliances, cars, tubes, hoses, etc., which conventionally contain cross-linking agents.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 1792

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